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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,575	06/30/2003	Tae Yun Kim	40296-0006	7309

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HELLER EHRMAN WHITE & MCAULIFFE LLP
1717 RHODE ISLAND AVE, NW
WASHINGTON, DC 20036-3001

EXAMINER

TSAI, SHENG JEN

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,575

Applicant(s)

KIM, TAE YUN

Examiner

Sheng-Jen Tsai

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 14, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 8-13 and 15-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06/30/03, 03/11/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-20 are presented for examination in this application (10,608,575) filed on June 30, 2003.

Acknowledgement is made to the Information Disclosure Statement received on June 30, 2003, and March 11, 2005.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 14 and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Hwang et al. (US 6,590,822).

As to claim 1, Hwang et al. disclose **a self-refresh device** [System and method for Performing Partial Array Self-Refresh Operation in a Semiconductor Memory Device (title)], **comprising:**
a partial array self-refresh decoder [abstract; column 2, lines 50-57] **for decoding and latching an address preset as an extended mode register set code in response to a mode register set signal** [a mode register setting signal PMRS is at a logic high level ... (column 8, lines 27-48)], **and then selectively activating a plurality of control signals for performing a partial array self-refresh operation by combining corresponding addresses when a self-refresh signal is activated** [column 3, lines 13-31]; **and**

a row address strobe generator [RAS, figure 4; column 7, lines 60-67] for controlling a row active signal for selectively activating at least one or more banks depending on states of the plurality of control signals when a refresh operation signal is activated [column 3, lines 5-12], or selectively activating a certain array region selected in a single bank [1/2, 1/4, 1/8 or 1/16 of a selected memory bank (column 2, lines 50-57)].

As to claim 2, Hwang et al. teach that **the device according to claim 1, further comprising:**

a command decoder for outputting the mode register set signal, the self-refresh signal and a refresh flag signal by decoding an externally inputted refresh command [the memory device enters into a self-refresh mode in response to an externally input command signal (column 2, lines 11-23); the command buffer, figure 16, 1601; column 13, lines 60-67; column 14, lines 1-4];

a refresh counter for outputting a refresh request signal by performing a counting operation corresponding to a refresh cycle in response to the refresh flag signal [cell data are amplified in connection with a self-refresh counter in Block1, figure 15a (column 17, lines 1-7)];

an internal address counter for counting and generating an internal address in response to the refresh flag signal and the refresh request signal [figure 16, 1605, shows the internal address counters; column 2, lines 57-65]; and

a row pre-decoder for outputting an external address as a row address in a normal mode, and outputting the internal address as the row address in a refresh mode [the row address pre-decoder, figure 16, 1607; column 3, lines 45-50].

As to claim 3, Hwang et al. teach that **the device according to claim 1, wherein the extended mode register set sets up a code for performing a self-refresh operation on a cell array [a mode register setting signal PMRS is at a logic high level ... (column 8, lines 27-48)] corresponding to a half of one bank when a partial array self-refresh operation is in a half of bank mode, and for performing a self-refresh operation on a cell array corresponding to a quarter of one bank when a partial array self-refresh operation is in a quarter of bank mode [1/2, 1/4, 1/8 or 1/16 of a selected memory bank (column 2, lines 50-57)].**

As to claim 4, Hwang et al. teach that **the device according to claim 3, wherein when the partial array self-refresh operation is in a HALF of BANK mode, the partial array self-refresh decoder activates control signals corresponding to a quarter of the plurality of control signals until a most significant bit of address in the bank becomes high [column 13, lines 4-59].**

As to claim 5, Hwang et al. teach that **the device according to claim 3, wherein when the partial array self-refresh operation is in a quarter of bank mode, the partial array self-refresh decoder activates control signals corresponding to a quarter of the plurality of control signals until at least one of two most significant bits of address in the bank becomes high [column 13, lines 4-59].**

As to claim 6, Hwang et al. teach that **the device according to claim 1, wherein the partial array self-refresh decoder comprises:**

an extended mode register set decoder for outputting a register set control signal by decoding a bank selection address in response to the mode register set signal [a mode register setting signal PMRS is at a logic high level ... (column 8, lines 27-48)];

a plurality of address latches each of which for outputting register set address bit by latching a address, in response to the register set control signal and the self-refresh signal when the mode register set signal is applied [column 8, lines 3-18]; and

a partial array self-refresh controller for selectively activating the plurality of control signals by decoding the plurality of register set addresses depending on input of the internal address [the refresh controller, figure 2, 217; column 6, lines 39-45].

As to claim 7, Hwang et al. teach that **the device according to claim 6, wherein the extended mode register set decoder activates the register set control signal at the activation of the mode register set signal when a most significant bit address of the bank selection address is high, and a second most significant bit of the bank selection address is low [a mode register setting signal PMRS is at a logic high level ... (column 8, lines 27-48)].**

As to claim 14, Hwang et al. teach that **the device according to claim 1, wherein the row address strobe generator controls the row active signal**

depending on a bank selection address and a normal operation signal activated in a normal mode, and controls the row active signal depending on the plurality of control signals and the refresh operation signal activated in a refresh mode [during a normal operating mode ..., column 2, lines 1-10; column 6, lines 10-22; column 8, lines 3-17].

As to claim 19, Hwang et al. teach that **the row address strobe generator is comprised to have the same number of the banks** [figure 16; column 3, lines 5-12].

As to claim 20, refer to "As to claim 1."

Allowable Subject Matter

3. Claims 8-13 and 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Related Prior Art

The following list of prior art is considered to be pertinent to applicant's invention, but not relied upon for claim analysis conducted above.

- Tsern et al., (US 6,345,009), "Apparatus and Method for Refreshing Subsets of Memory Devices in a Memory System."
- Jung, (US 6,137,742), "Semiconductor Memory Device Having Self-Refresh Control Circuit."
- Seyyedy, (US 5,818,777), "Circuit for Implementing and Method for Initiating Self-Refresh Mode."

Conclusion

5. Claims 1-7, 14 and 19-20 are rejected as explained above.

Claims 8-13 and 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

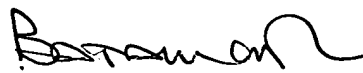
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheng-Jen Tsai whose telephone number is 571-272-4244. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheng-Jen Tsai
Examiner
Art Unit 2186

September 14, 2005


PIERRE BATAILLE
PRIMARY EXAMINER
9/15/05